

Form PTO-1449
(REV. 7-80)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
UGR-100X D1

SERIAL NO.

INFORMATION DISCLOSURE STATEMENT
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APPLICANT(S): Michael J. Adang, Laura M. Kasman

FILING DATE
April 20, 2004

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U.S. PATENT DOCUMENTS

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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

/SL/	AO	Marzari, R., P. Edomi, R.K. Bhatjagar, S. Ahmad, A. Selvapandiyan, and A. Bradbury (1997) "Phage display of <i>Bacillus thuringiensis</i> CryIA(a) toxin." <i>FEBS Letters</i> 411:27-31.
↓	AP	Schwartz, J.-L., Y.J. Lu, P. Soehnlein, R. Brousseau, L. Masson, R. Laprade, and M. J. Adang (1997) "Ion channels formed in planar lipid bilayers by <i>Bacillus thuringiensis</i> toxins in the presence of <i>Manduca sexta</i> midgut receptors." <i>FEBS Lett.</i> 412:270-276.
	AQ	Dean, D. H., F. Rajamohan, M. K. Lee, S. J. Wu, X. J. Chen, E. Alcantara, and S. R. Hussain (1996) "Probing the mechanism of action of <i>Bacillus thuringiensis</i> insecticidal proteins by site-directed mutagenesis - A minireview." <i>Gene</i> 179:111-117.
	AR	Hogrefe, H.H., J.R. Amberg, B.N. Hay, J.A. Sorge, and B. Shopes (1993) "Cloning in a bacteriophage lambda vector for the display of binding proteins on filamentous phage." <i>Gene</i> 137:85-91.
	AS	Smith, G.P. and D. J. Ellar (1994) "Mutagenesis of two surface exposed loops of the <i>Bacillus thuringiensis</i> CryIC d-endotoxin affects insecticidal specificity." <i>Biochem. J.</i> 302:611-616.
↓	AT	Wabiko, H. and Yasuda, E. (1995) " <i>Bacillus thuringiensis</i> protoxin location of toxic border and requirement of non-toxic domain for high level <i>in vivo</i> production of active toxin." <i>Microbiology</i> 141:629-639.

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/SL/	AO	Crickmore, N., D.R. Zeigler, J. Feitelson, E. Schnepf, J. Van Rie, D. Lereclus, J. Baum, and D.H. Dean (1998) "Revision of the nomenclature of the <i>Bacillus thuringiensis</i> pesticidal crystal proteins," <i>Microbiology and Molecular Biology Reviews</i> 62:807-813.
	AP	Estruch J J, Carozzi N B, Desai N, Duck N B, Warren G W, Koziel M G. (1997) "Transgenic plants An emerging approach to pest control." <i>Nature Biotechnology</i> 15:137-141.
	AQ	Chen, X.J., M.K. Lee, and D.H. Dean (1993) "Site-directed mutations in a highly conserved region of <i>Bacillus thuringiensis</i> d-endotoxin affect inhibitions of short circuit current across <i>Bombyx mori</i> midguts," <i>Proc. Natl. Acad. Sci. USA</i> 90:9041-9045.
	AR	Stemmer, W.P.C. (1994b) "DNA shuffling by random fragmentation and reassembly: <i>In vitro</i> recombination for molecular evolution." <i>Proc. Natl. Acad. Sci. U.S.A.</i> 91:10747-10751.
	AS	Rajamohan, F., J.A. Cotrill, F. Gould, and D.H. Dean (1996) "Role of domain II, loop 2 residues of <i>Bacillus thuringiensis</i> CryIAb d-endotoxin in reversible and irreversible binding to <i>Manduca sexta</i> and <i>Heliothis virescens</i> ." <i>J. Biol. Chem.</i> 271:2390-2396.
↓	AT	Masson, L., Y.-J. Lu, A. Mazza, R. Brosseau, and M.J. Adang (1995) "The CryIA(c) receptor purified from <i>Manduca sexta</i> displays multiple specificities." <i>J. Biol. Chem.</i> 270:20309-20315.

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/SL/	AO	Sangadala, S., F.S. Walters, L. H. English, and M.J. Adang (1994) "A mixture of <i>Manduca sexta</i> aminopeptidase and phosphatase enhances <i>Bacillus thuringiensis</i> insecticidal CryIA(c) toxin binding and ⁸⁶ Rb/K ⁺ efflux <i>in vitro</i> ." <i>J. Biol. Chem.</i> 269:10088-10092.
	AP	Knowles, B.H. and J.A.T. Dow (1993) "The crystal delta-endotoxins of <i>Bacillus thuringiensis</i> - models for their mechanism of action on the insect gut." <i>Bioassays</i> 15:469-476.
	AQ	Lee, M.K., B.A. Young and D.H. Dean (1995) "Domain III exchanges of <i>Bacillus thuringiensis</i> CryIA toxins affect binding to different gypsy moth midgut receptors." <i>Biochem. Biophys. Res. Comm.</i> 216:306-312.
	AR	Bosch, D., B. Schipper, H. Van Der Kleij, R.A. De Maagd, and W.J. Steikema (1994) "Recombinant <i>Bacillus thuringiensis</i> crystal proteins with new properties Possibilities for resistance management." <i>Biotechnology</i> 12:915-918.
	AS	Feitelson, J.S., J. Payne, and L. Kim (1992) " <i>Bacillus thuringiensis</i> Insects and beyond," <i>Biotechnology</i> 10:271-275.
↓	AT	Parmley, S.F. and Smith, G.P. (1988) "Antibody-selectable filamentous phage vectors affinity purification of target genes." <i>Gene</i> 73:305-318.

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/SL/	AO	Hoite, H., S. Buyssens, M. Vaeck, and J. Leemans (1988) "Fusion proteins with both insecticidal and neomycin phosphotransferase II activity." <i>FEBS Lett.</i> 226:364-370.
	AP	Bullock <i>et al.</i> , (1987) "XL1-Blue: A high efficiency plasmid transforming recA <i>Escherichia coli</i> strain with Beta-Galactosidase selection." <i>BioTechniques</i> 5(4): 376-379.
	AQ	Wolfersberger, M.G., Luthy, P., Maurer, A., Parenti, P., Sacchi, V.F., Giordana, B., and Hanozet, G.M. (1987) "Preparation and partial characterization of amino acid transporting brush border membrane vesicles from the larval midgut of the cabbage butterfly (<i>Pieris brassicae</i>). <i>" Comp. Biochem. Physiol.</i> 86A: 301-308.
	AR	Messing <i>et al.</i> , (1981) "A system for shotgun DNA sequencing." <i>Nucleic Acids Res.</i> 9:309-321.
	AS	Zoller <i>et al.</i> , (1982) "Oligonucleotide-directed mutagenesis using M13-derived vectors: an efficient and general procedure for the production of point mutations in any fragment of DNA." <i>Nucleic Acids Res.</i> 10:6487-6504.
↓	AT	Hofmann, C., H. Vanderbruggen, H. Hoite, J. Van Rie, S. Jansens, and H. Van Mellaert. (1988) "Specificity of <i>Bacillus thuringiensis</i> δ-endotoxins is correlated with the presence of high affinity binding sites in the brush border membrane of target insect midguts." <i>Proc. Natl. Acad. Sci. USA</i> 85:7844-7848.

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/SL/	AO	Keohavong, P., and Thilly, W.G. (1989) "Fidelity of DNA polymerases in DNA amplification," <i>Proc. Natl. Acad. Sci. U.S.A.</i> 86:9253-9257.
	AP	Ge, A.Z. et al. (1989) "Location of the Bombyx mori specificity domain on a <i>Bacillus thuringiensis</i> Delta-endotoxin protein." <i>Proc. Natl. Acad. Sci. USA</i> 86:4037-4041.
	AQ	Crea et al. (1978) "Chemical synthesis of genes for human insulin," <i>Proc. Nat'l. Acad. Sci. U.S.A.</i> 75:5765-5769.
	AR	English, L. and Readdy, T.L. (1989) "Delta endotoxin inhibits a phosphatase in midgut epithelial membranes of <i>Heliothis virescens</i> ." <i>Insect Biochem.</i> 19:145-152.
	AS	Hunter, W. and Greenwood, F. (1962) "Preparation of iodine-131 labeled human growth hormone of high specific activity." <i>Nature</i> 194:495-496.
↓	AT	Cadwell, R., and Joyce, G. (1994) "Mutagenic PCR," <i>PCR Methods/Appl.</i> 32:S136-S140.

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/SL/	AO	Cadwell, R., and Joyce, G.F. (1992) "Randomization of genes by PCR mutagenesis," <i>PCR Methods Appl.</i> 2:28-33.
	AP	Li, J., Carroll, J., and Ellar, D.J. (1991) "Crystal structure of insecticidal <i>d</i> -endotoxin from <i>Bacillus thuringiensis</i> at 2.5 Å resolution." <i>Nature</i> 353:815-821.
	AQ	Knight, P.J., N. Crickmore, and D.J. Ellar (1994) "The receptor for <i>Bacillus thuringiensis</i> CryIA(c) delta-endotoxin in the brush border membrane of the lepidopteran <i>Manduca sexta</i> is aminopeptidase N," <i>Molec. Microbiol.</i> 11:429-436.
	AR	Stemmer, W.P.C. (1994a) "Rapid evolution of a protein <i>in vitro</i> by DNA shuffling," <i>Nature (London)</i> 370:389-391.
	AS	Lambert, B. and Peferoen, M. (1992) "Insecticidal promise of <i>Bacillus thuringiensis</i> ," <i>Bioscience</i> 42:112-122.
↓	AT	Stewart, C.N., M.J. Adang, J.N. All, H.R. Boerma, G. Cardineau, D. Tucker, and W.A. Parrott (1996) "Genetic transformation, recovery, and characterization of fertile soybean transgenic for a synthetic <i>Bacillus thuringiensis</i> <i>crvI</i> .Ac gene." <i>Plant Physiol.</i> 112:121-129.

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/SL/	AO	Saiki, R.K., Gelfand, D.H., Stoffel, S., Scharf, S.J., Higuchi, R., Horn, G.T., Mullis, K.B., and Erlich, H.A. (1988) "Primer-directed enzymatic amplification of DNA with a thermostable DNA polymerase." <i>Science</i> 239:487-491.
	AP	Scott, J. K. and Smith, G. P. (1990) "Searching for peptide ligands with an epitope library." <i>Science</i> 249:386-390.
	AQ	Bartel, D., and Szostak, J. (1993) "Isolation of new ribozymes from a large pool of random sequences," <i>Science</i> 261:1411-1418.
	AR	De Maagd, R. A., H. van der Kleij, P. Bakker, W.J. Stiekema, and D. Bosch (1996) "Different domains of <i>Bacillus thuringiensis</i> d-endotoxins can bind to insect midgut membrane proteins on ligand blots," <i>App. Environ. Microbiol.</i> 62:2753-2757.
	AS	Garczynski, S.F., Crim, J.W., and Adang, M.J. (1991) "Identification of putative insect brush border membrane-binding molecules specific to <i>Bacillus thuringiensis</i> d-endotoxin by protein blot analysis." <i>Appl. Environ. Microbiol.</i> 57:2816-2820.
↓	AT	Lee, M.K., F. Rajamohan, F. Gould, and D.H. Dean (1995) "Resistance to <i>Bacillus thuringiensis</i> CryIA d-endotoxins in a laboratory-selected <i>Heliothis virescens</i> strain is related to receptor alteration," <i>Appl. Environ. Microbiol.</i> 61:3836-3842.

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	AP	Van Rie, J., S. Jansens, H. Hotte, D. Degheele, and H. Van Melleart (1990) "Receptors on the brush border membrane of the insect midgut as determinants of the specificity of <i>B. thuringiensis</i> delta-endotoxins," <i>Appl. Environ. Microbiol.</i> 56:1378-1385.
	AQ	Wolfersberger, M.G., X.J. Chen, and D.H. Dean (1996) "Site-directed mutations on the third domain of <i>Bacillus thuringiensis</i> d-endotoxin CryIAa affect its ability to increase the permeability of <i>Bombyx mori</i> midgut brush border membrane vesicles." <i>Appl. Environ. Microbiol.</i> 62:279-282.
	AR	Grochulski, Pawel, Luke Masson, Svetlana Borisova, Marianne Pusztai-Carey, Jean-Louis Schwartz, Roland Brousseau, and Miroslaw Cygler (1995) " <i>Bacillus thuringiensis</i> CryIA(a) Insecticidal Toxin: Crystal Structure and Channel Formation." <i>J. Mol. Biol.</i> 254:447-464.
	AS	Smith, George P. (1988) "Filamentous Phage Assembly: Morphogenetically Defective Mutants That Do Not Kill The Host." <i>Virology</i> 167:156-165.
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Substitute for form 1449P/10 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete If Known Application Number 10/828,919 Filing Date April 4, 2004 First Named Inventor Michael J. Adang Group Art Unit 1639 Examiner Name Sue Xu Liu Attorney Docket Number UGR-100XD1	
Sheet	1	of	5

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.†	Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	†
/SL/	R1	BARTEL, D., and Szostak, J., "Isolation of new ribozymes from a large pool of random sequences," Science (1993) pp:1411-1418, Vol. 261	
	R2	BENHAMM, Howard, Protein Pharmaceuticals, Inc., Cambridge, MA, (unpublished)	
/SL/	R3	BOSCH, D., B. Schipper, H. Van Der Kleij, R.A. De Maagd, and W.J. Steikema, "Recombinant Bacillus thuringiensis crystal proteins with new properties Possibilities for resistance management," Biotechnology (1994) pp:915-918, Vol. 12	
	R4	QUILLLOCK et al., "XL1-Blue: A high efficiency plasmid transforming recA Escherichia coli strain with Beta-Galactosidase selection," BioTechniques, (1987) pp 376-379, Vol 5 (4)	
	R5	CADWELL, R., and Joyce, G.F., "Randomization of genes by PCR mutagenesis," PCR Methods Appl. (1992) pp:28-33, Vol. 2	
	R6	CADWELL, H., and Joyce, G. (1994) "Mutagenic PCR," PCR Methods/App. (1994) pp:9136-9140, Vol. 32	
	R7	CHEN, X.J., M.K. Leo, and D.H. Dean (1993) "Site-directed mutations in a highly conserved region of Bacillus thuringiensis delta-endotoxin affect inhibitions of short circuit current across Bombyx mori midgut," Proc. Natl. Acad. Sci. USA (1993) pp:9041-9045, Vol. 90	
	R8	CREA et al., "Chemical synthesis of genes for human insulin," Proc. Nat'l Acad. Sci. (1978), pp 5765-5769, Vol. 75	
	R9	CRICKMORE, N., D.R. Ziegler, J. Feltelson, E. Schnepf, J. Van Rie, D. Lereclus, J. Baum, and D.H. Dean "Revision of the nomenclature of the Bacillus thuringiensis pesticidal crystal proteins," Microbiology and Molecular Biology Reviews, (1998) pp:807-813, Vol. 62	
	R10	DEAN, D.H., F. Rajamohan, M. K. Leo, S. J. Wu, X. J. Chen, E. Alcantara, and S. R. Hussain, "Probing the mechanism of action of Bacillus thuringiensis insecticidal proteins by site-directed mutagenesis - A minireview," Qeios (1999) pp:111-117, Vol. 179	
	R11	DE MAAGD, R. A., H. van der Kleij, P. Bakker, W.J. Steikema, and D. Bosch, "Different domains of Bacillus thuringiensis delta-endotoxins can bind to insect midgut membrane proteins on ligand blots," App. Environ. Microbiol. (1996) pp:2753-2757, Vol. 62	
V	R12	ENGLISH, L. and Roady, T.L., "Delta endotoxin inhibits a phosphatase in midgut epithelial membranes of Heliothis virescens," Insect Biochem. (1989) pp:145-152, Vol. 19	

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 † Applicant's unique citation designation number (optional). ‡ Applicant is to place a check mark here if English language Translation is attached.
 This collection of information is required by 37 CFR 1.90. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including printing, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
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Sheet	2	of	5		

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		ESTRUCH J.J., Carozzi N.B., Dasai N., Duck N.B., Warren C.W., Kari M.G., "Transgenic plants An emerging approach to pest control," Nature Biotechnology, (1997) pp.137-141, Vol. 15		
	R13	FITTELSON, J.S., J. Payne, and L. Kim, "Bacillus thuringiensis Insects and beyond," Biotechnology (1992) pp.271-276, Vol. 10		
ISL	R15	GARCZYNSKI, S.F., Crini, J.W., and Adang, M.J., "Identification of putative insect brush border membrane-binding molecules specific to Bacillus thuringiensis delta-endotoxin by protein blot analysis," Appl. Environ. Microbiol. (1991) pp.2810-2820, Vol. 57		
	R16	GC, A.Z. et al, "Location of the Bombyx mori specificity domain on a Bacillus thuringiensis Delta-endotoxin protein," Proc. Natl. Acad. Sci USA (1989) pp:4037-4041, Vol. 86		
	R17	GROCIULSKI, P., L. Matson, S. Borisova, M. Puzial-Carey, J.-L. Schwarz, R. Brousseau, and M. Cygler "Bacillus thuringiensis Cry1A(a) insecticidal toxin crystal structure and channel formation," J. Mol. Biol. (1995) pp:447-464, Vol. 251		
	R18	HOFMANN, C., H. Vanderbruggen, H. Holte, J. Van Rie, S. Janssens, and H. Van Mellaert, "Specificity of Bacillus thuringiensis delta-endotoxins is correlated with the presence of high affinity binding sites in the brush border membrane of target insect midguts," Proc. Natl. Acad. Sci. USA (1988) pp:7844-7848, Vol. 85		
	R19	HOFRE, H., S. Buyskens, M. Vack, and J. Leemans, "Fusion proteins with both insecticidal and neomycin phosphotransferase II activity," FEBS Lett. (1988) pp:364-370, Vol. 226		
	R20	HOGREFE, H.H., J.R. Amberg, B.N. Hay, J.A. Sorge, and B. Shopes, "Cloning in a bacteriophage lambda vector for the display of binding proteins on filamentous phage," Gene (1993) pp:85-91, Vol. 137		
	R21	HUIJER, W. and Greenwood, F., "Preparation of iodine-131 labeled human growth hormone of high specific activity," Nature (1962) pp:495-496, Vol. 194		
ISL	R22	KASMAN, Laura M., Lukowiak, Andrew A., Garczynski, Stephen F., McNall, Rebecca J., Youngman, Phil, and Adang, Michael, "Phage Display of a Biologically Active Bacillus thuringiensis Toxin", Applied and Environmental Microbiology, (1998) pp:3098-3003, Vol. 64, No. 8		
ISL	R23	KEOHAVONG, P., and Thilly, W.G., "Fidelity of DNA polymerases in DNA amplification," Proc. Natl. Acad. Sci. U.S.A. (1990) pp:9253-9257, Vol. 88		
ISL	R24	KNIGHT, P.J., N. Cridmore, and D.J. Ellar, "The receptor for Bacillus thuringiensis Cry1A(c) delta-endotoxin in the brush border membrane of the lepidopteran Manduca sexta is aminopeptidase N," Molec. Microbiol. (1994) pp:428-438, Vol. 11		

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/SL/	R37	SCHWARTZ, J.-L., Y.J. Lu, P. Strahle, R. Brousseau, L. Masson, R. Laprade, and M. J. Adang, "Ion channels formed in planar lipid bilayers by <i>Bacillus thuringiensis</i> toxins in the presence of <i>Manduca sexta</i> midgut receptors," <i>FEBS Lett.</i> (1997) pp.270-270, Vol. 412	
	R38	SICOT, J. K. and Smith, G. P., "Searching for peptide ligands with an epitope library," <i>Science</i> (1990) pp.386-390, Vol. 249	
	R39	SMITH, G.P., "Filamentous phage assembly Morphogenetically defective mutants that do not kill the host," <i>Virology</i> (1990) pp.156-165, Vol. 167	
	R40	SMITH, G.P. and D. J. Ellar, "Mutagenesis of two surface exposed loops of the <i>Bacillus thuringiensis</i> Cry1C d-endotoxin affects insecticidal specificity," <i>Biochem. J.</i> (1994) pp.611-616, Vol. 302	
	R41	STEMMER, W.P.C., "Rapid evolution of a protein in vitro by DNA shuffling," <i>Nature (London)</i> (1994a) pp.389-391, Vol. 370	
	R42	STEMMER, W.P.C., "DNA shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution," <i>Proc. Natl. Acad. Sci. U.S.A.</i> (1994b) pp.10747-10751, Vol. 91	
	R43	STEWART, G.N., M.J. Adang, J.N. Ali, H.R. Boerma, G. Cardineau, D. Tucker, and W.A. Parrott, "Genetic transformation, recovery, and characterization of fertile soybean transgenic for a synthetic <i>Bacillus thuringiensis</i> cry1Ac gene," <i>Plant Physiol.</i> (1996) pp.121-129, Vol. 112	
	R44	TARASHNIK, R.E., T. Mulvar, Y.-B. Liu, N. Finson, D. Boethakur, B.S. Shin, S.-H. Park, L. Masson, R. DeMaagd, and D. Bosch, "Cross-resistance of diamondback moth implies altered interactions with Domain II of <i>Bacillus thuringiensis</i> toxins," <i>Appl. Environ. Microbiol.</i> (1996) pp.2839-2844, Vol. 62	
	R45	VAN RIL, J., S. Janssens, H. Hofu, D. Degheele, and H. Van Melleart, "Receptors on the brush border membrane of the insect midgut as determinants of the specificity of <i>B. thuringiensis</i> delta-endotoxins," <i>Appl. Environ. Microbiol.</i> (1990) pp.1370-1385, Vol. 56	
	R46	WADIKO, H. and Yasufu, E., " <i>Bacillus thuringiensis</i> protoxin location of toxic border and requirement of non-toxic domain for high level in vivo production of active toxin," <i>Microbiology</i> (1995) pp.629-639, Vol. 141	
V	R47	WOLTERBERGER, M.G., X.J. Chen, and D.H. Dean, "Site-directed mutations on the third domain of <i>Bacillus thuringiensis</i> d-endotoxin Cry1Aa affect its ability to increase the permeability of <i>Bombyx mori</i> midgut brush border membrane vesicles," <i>Appl. Environ. Microbiol.</i> (1998) pp.279-282, Vol. 62	
	R48	WOLTERBERGER, M.G., Luthy, P., Maurer, A., Parenti, P., Sacchi, V.F., Giordano, B., and Hanozel, G.M., "Preparation and partial characterization of amino acid transporting brush border membrane vesicles from the larval midgut of the cabbage butterfly (<i>Pieris brassicae</i>)," <i>Comp. Biochem. Physiol.</i> (1987) pp.301-308, Vol. 86A	

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/SL/	R37	ZOLLER et al., "Oxytocin-like diuretic mutagenesis using M13-derived vectors: an efficient and general procedure for the production of point mutations in any fragment of DNA, Nucleic Acids Res., (1982) pp 6487-6504, Vol. 10	
	R38		
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